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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/745,509	11/12/1996	MICHAEL S. FELD	MIT-6186Z	6390

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EXAMINER

SMITH, RUTH S

ART UNIT PAPER NUMBER

3737

DATE MAILED: 12/30/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/745,509

Applicant(s)

FELD ET AL.

Examiner

Ruth S Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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In view of the papers that crossed in the mail with the office action mailed April 16, 2003, the previous rejections have been withdrawn and the following new grounds of rejection have been set forth.

Drawings

The drawings were received on October 20, 2003. These drawings are acceptable.

Claim Rejections - 35 USC § 112

Claim 35 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 35 is vague and indefinite in that it is unclear as to whether the broadband light source is the radiation source set forth in claim 29 or is an additional radiation source.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-17, 19-24, 26-35, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfano et al (5,293,872) in view of Lewis et al, Kittrell et al ('404) and Ito or Nagasaki et al. Alfano et al disclose the basic teaching of using a Raman endoscope as a diagnostic tool in examining tissue in vivo. Alfano et al discloses the use of a Nd:YAG laser to excite the tissue. Alfano et al also discloses the use of a broadband light source in order to provide a visible image of the tissue. Lewis et al discloses a spectroscopic imaging device that includes an acousto-optic tunable filter and a focal

plane array detector. The focal plane array detector is cooled with liquid nitrogen. The invention of Lewis et al relates to non-invasively collecting images at multiple discrete wavelengths in the visible, infrared or near-infrared region. The device of Lewis et al is applicable to biological materials. Lewis et al disclose forming a plurality of images at different infrared wavelengths as seen in column 12. Lewis et al specifically refers to the use of the spectroscopic imaging device in a microscope but states in column 16 that the invention can be applied to other traditional absorption or emission spectroscopic approaches. Therefore, it would have been obvious to one skilled in the art to have modified Alfano et al such that the detector used is a focal plane array for the advantages disclosed by Lewis et al such as improved spectral and spatial resolution. Furthermore, it should be noted that it is a well known expedient in the art to place the imaging device at the distal end of the endoscope rather than using an optical fiber to transmit the detected radiation to an image sensor. Examples of such are shown in Ito and Nagasaki et al. Kittrell et al disclose the use of a cutoff filter at the distal end of a device used for fluorescence imaging to filter out source wavelengths backscattered toward the detector. It would have been obvious to one skilled in the art to have further modified Alfano et al such that the focal plane array sensor is placed at the distal end of the endoscope. The advantage of such is to prevent the quality of pictures from deteriorating due to the breaking of optical fibers. Furthermore, it would have been obvious to one skilled in the art to have placed an optical filter in front of the imaging sensor in order to detect Raman scattered radiation at the desired wavelengths and filter out source wavelengths which would affect the desired results.

Claims 18,25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfano et al (5,293,872) in view of Lewis et al, Kittrell et al and Ito or Nagasaki et al as applied to claim 15 above, and further in view of Sekiguchi. Sekiguchi discloses an endoscope that provides both a visible image and an image that provide information regarding tissue properties. The images are displayed simultaneously by a processing unit. Therefore, the system provides means for comparing the images. It would have been obvious to one skilled in the art that the images displayed by Alfano et al are

simultaneously displayed such that they can be compared. Such comparison provides a more enhanced diagnostic evaluation tool.

Claims 36,38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfano et al (5,293,872) in view of Lewis et al, Kittrell et al and Ito or Nagasaki et al as applied to claim 29 above, and further in view of Janes et al. Janes is just one example of many which disclose a optical method of analyzing tissue which includes determining concentrations of a plurality of tissue components. In the absence of any showing of criticality, the specific manner in which the amount of a component of the tissue is determined would have been an obvious design choice of known equivalents in the art. It would have been obvious to one skilled in the art to have further modified the method of Alfano et al such that it includes determining the amount of a plurality of tissue components such as by concentration or percentage. The advantage of such is to provide a more complete analysis of the tissue being evaluated.

Response to Amendment

The declaration under 37 CFR 1.132 filed April 14, 2003 is sufficient to overcome the rejection of claims 29-38 based upon 35 USC 112, first paragraph.

Response to Arguments

Applicant's arguments with respect to claims 15-38 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth S Smith whose telephone number is (703) 308-3063. The examiner can normally be reached on M-F 5:30 AM- 2:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dennis Ruhl can be reached on (703) 308-2262. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3590.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858.

A handwritten signature in black ink, appearing to read "Ruth S. Smith", with a stylized flourish at the end.

Ruth S Smith
Primary Examiner
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RSS